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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,381	09/20/2005	Eisuke Sasaoka	50212-631	6952

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MCDERMOTT WILL & EMERY LLP
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EXAMINER	
LEPISTO, RYAN A	
ART UNIT	PAPER NUMBER
2883	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,381	SASAOKA ET AL.	
	Examiner	Art Unit	
	Ryan Lepisto	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 17-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8 and 17-19* is/are rejected.

7)☒ Claim(s) *7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/16/06,1/8/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bickham et al (US 2003/0174988 A1)** (Bickham).

Bickham teaches a silica glass optical fiber having a core (not containing germania, paragraph 0095)) and cladding have the following properties: a transmission loss at 1380 nm is preferably less than about 0.4 dB/km (paragraph 0017), a transmission loss at 1310 nm being the same as the attenuation at 1380 nm or within 0.05 dB/km the transmission loss at 1380 nm or the transmission loss at 1380 is lower than the transmission loss at 1310 nm (paragraph 0017), a mode field diameter at 1310 nm of 6.5 to 6.7 μm (Table 2), a chromatic dispersion at 1550 nm between 5 and 9 ps/nm/km (paragraph 0010), a dispersion slope at 1550 nm is less then about 0.042 $ps/nm^2/km$ (paragraph 0013), a cable cutoff of less than 1240 nm (paragraph 0014), a transmission loss at 1550 nm of less than about 0.02 dB/km (paragraph 0016), the difference between transmission loss at 1550 nm and at 1310 nm being between 0.1 to 0.4 (from the values in paragraph 0017), polarization mode dispersion at 1550 nm of less than about 0.04 $ps/km^{1/2}$ (paragraph 0018), a core outer diameter of between 6 and 10 μm (paragraph 0024), a refractive index difference between the core and cladding of

between 0.1% to 0.6% (from the values in paragraphs 0023 and 0030, which is the difference between the core and the outer cladding), loss due to OH induced water peaks at 1380 nm being virtually eliminated (paragraph 0112), a measured zero dispersion wavelength of between 1308 and 1316 nm (Table 2) and a dispersion slope at 1400 nm (which is in the preferable zero dispersion wavelength range (0010)) of 0.037 to 0.039 ps/nm^2/km (Table 2).

Bickham does not teach expressly an exact range of transmission loss of less than 0.32 dB/km at 1310 nm.

Bickham teaches attenuation in a range around 0.4 dB/km as previously discussed.

At the time the invention was made, it would obvious to a person of ordinary skill in the art to achieve low transmission ranges. Applicant has not disclosed that an exact range less than 0.32 dB/km provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the fiber taught by Bickham because of the low transmission taught that overlaps applicant's claimed range.

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Further, it has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA

1955). "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). For more recent cases applying this principle, see Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990); and In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

The motivation for doing so would have been reduce the need for amplifiers and/or repeaters along the transmission line by being able to reduce losses in the line.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bickham as applied to claims 1-6 and 19 above, and further in view of **Sasaoka et al (US 6,345,140 B1)** (Sasaoka).

Bickham teaches the fiber previously discussed.

Bickham does not teach expressly the value of the Petermann-I mode field diameter.

Sasaoka teaches that the Petermann-I mode field diameter is related to the mode field diameter by the known equations 1a and 1b (column 1 lines 52-59).

Bickham and Sasaoka are analogous art because they are from the same field of endeavor, optical fibers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art that the fiber taught by Bickham will have a Petermann-I mode field diameter less than 10μm using the equations provided by Sasaoka since Bickham teaches a mode field diameter at 1550 nm of 7.5 to 7.7 μm (Table 2).

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Further, it has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). For more recent cases applying this principle, see Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990); and In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

The motivation for doing so would have been to have a better way to described the mode field diameter of the fiber while including the relationship of the electric field amplitude and a positional variable (Sasaoka, column 1 lines 52-65).

Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bickham as applied to claims 1-6 and 19 above, and further in view of **Kato et al (US 6,266,467 B1)** (Kato).

Bickham teaches the fiber previously discussed.

Bickham does not teach expressly the cladding doped with fluorine.

Kato teaches a fiber having a fluorine-doped cladding (column 27 lines 4-17).

Bickham and Kato are analogous art because they are from the same field of endeavor, optical fibers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to dope the cladding with fluorine since Bickham teaches it is known to diffuse dopants during manufacturing to round the corners of index profiles of his invention (paragraph 0127).

The motivation for doing so would have been to be able to enhance refractive index differences between layers will still allowing relatively easy manufacturing methods (Kato, column 27 lines 15-17).

Allowable Subject Matter

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: This claim would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening

claims because the latter, either alone or in combination, does not disclose nor render obvious an optical fiber mainly comprising silica glass having the combination of numerical property limitations giving the claim, in combination with the rest of the claimed limitations.

Response to Arguments

Applicant's arguments with respect to the rejected claims have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Lepisto whose telephone number is (571) 272-1946. The examiner can normally be reached on M-Th 7:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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